## OCCULT CHEMISTRY INVESTIGATIONS

A Record of the Examination by Clairvoyant Magnification into the Structure of 99 Chemical Elements and some Compounds

BY
ANNIE BESANT AND C. W. LEADBEATER

Edited by
C. JINARAJADASA, M.A. (Cantab.)

President of the Theosophical Society

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| Art as Will and Idea | Wr. As. 6. |  | 08 |
| Christ and Buddha | Wr. Re, 1-2. |  | 112 |
| Did Madame Blavatsky Forge The Mahatma Letters ? |  | Bd | 012 |
| The Early Teachings of the Masters | Bd. Re. 1-12, | Cl | 20 |
| Economics and Theosophy |  | Wr. | 04 |
| First Principles of Theosophy |  | Bd. | 70 |
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| Flowers and Gardens | Wr. As. 8. | CI. | 012 |
| Goethe's Faust |  | W | 08 |
| The Heritage of Our Fathers |  | $\mathrm{Wr}_{1}$ | 03 |
| In His Name | Wr. As. 8. | CI | 012 |
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| The K. H. Letters to C. W. L. |  | Bd. | 30 |
| Lecture Notes |  | Wr. | 012 |
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| The Meeting of The East and The West |  | Bd, | 06 |
| The Nature of Mysticism | Wr. Re, 1-4. | CI. | 20 |
| The New Humanity of Intuition |  | CI. | 112 |
| Occult Investigations |  | CI. | 14 |
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| The Personality of H.-P, Blavatsky |  | Wr | 06 |
| Practical Theosophy | Wr. Re. 1. | Cl . | 18 |
| Release | Wr. As. 12. | CI. | 10 |
| A Short Biography of Dr. Annie Besant |  | Wr. | 02 |
| The Spiritual Factor in National Life | Wr. As. 8. |  | 012 |
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## THE PERIODIC LAW

## (after Crookes)



The number affixed to an element is the number of "Anu "(the ultimate physical particles of which matter is constituted) which compose the element.
Isotopes are not given.
Elements not yet discovered by chemists:-36, 54, 2646, 2674, 3054-3096.

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" Science is under bonds, by the eternal principles of honour, to look fearlessly in the face of every problem that is presented to her."-Sir W. Thompson

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33, OVINGTON SQUARE, LONDON. S.W.3.
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January 8th, 1943.
Professor F. W. ASton, F.R.S.
Trinity College,
Cambridge.
Dear Sir,
In your article on Isotopes in the Britannica, you mention that in 1912 Neon was found to have an isotope. May I mention that using a method of investigation distinct from that known in chemistry, certain persons had in 1908 discovered that Neon had an isotope, though that term was not used by them, since it was coined by Soddy only in 1913? The persons were two, the late Annie Besant, President of the Theosophical Society, and her colleague, the late C. W. Leadbeater. The method used by them was to examine the atom by an unusual form of the psychic faculty called "clairvoyance," whereby an enlarged picture of the atom was obtained, so that the atom could be examined as a bacterium is examined through a microscope. The results of this type of investigation into the structure of atoms and some molecular compounds have been published at various times from the year 1895 to the year 1933, in a magazine called The Theosophist, published in Madras. It is in the issue of that magazine for November 1908, that it is stated that Neon has a second variety, to which was given the name " Meta-Neon." An illustration in two dimensions
was given of the appearance of both Neon and MetaNeon, with their weights in terms of $\mathrm{H}=1$.

But in addition, in that same issue are given illustrations of Argon and Meta-Argon, Krypton and Meta-Krypton, and Xenon and Meta-Xenon. Furthermore a heavier neutral gas and its meta variety were discovered, and called, for want of any recognised name, Kalon and Meta-Kalon.

In the issue of the same magazine for September, 1908, a second variety of Platinum is mentioned and an illustration given, and called Platinum B. In the issue of the magazine for July 1909, an isotope of Mercury is mentioned, in all cases the weights being given $\mathrm{H}=1$.

The articles which appeared in The Theosophist magazine month by month from January 1908 to December 1908, describing with illustrations 57 chemical elements, and the disintegration of 56 of them, were published in book form under the title "Occult Chemistry." In addition to these elements, as the book went to press in December 1908, the statement is made that the investigators had discovered a new interperiodic group of three elements among the rare earths, coming between $\mathrm{Fe}, \mathrm{Co}, \mathrm{Ni}$ and $\mathrm{Os}, \mathrm{Ir}, \mathrm{Pt}$.

The concluding pages give a brief statement of the work done, both of the material already published, and the material awaiting publication.

In your report of the Committee on Atomic Weights, published in Nature, October 31, 1942, you announce a stable isotope of Helium of mass 3. In The Theosophist for January 1908, this element " 3 " is described and illustrated. It is considered not to be an
isotope of He but a new gaseous element, though in the structure of the Helium atom there appear the full constituents of Hydrogen, and double the principal parts of " 3 ."

In the Times of yesterday (January 7) the announcement is made of the isolation of " 85 ," with the temporary name Anglo-Helvetium. In The Theosophist for November 1932-ten years and two months ago-an illustration of " 85 " is given, and a statement made that it belongs to the same family as $\mathrm{Na}, \mathrm{Cl}, \mathrm{Cu}$, $\mathrm{Br}, \mathrm{Ag}, \mathrm{I}, \mathrm{Sm}, \mathrm{Er}$, and Au , illustrations of all of which are given. It is furthermore stated that " 3 " appears built into the structure of Sm 8 -fold, into that of Er 12 -fold, into " 85 " 16 -fold, and into Au also 16 -fold, though in a different structure (as too into Mercury, though no illustration of this, though drawn, was published).

From the mass of material accumulated by me as recorder of these clairvoyant investigations, the following facts emerge :

1. There are at least 99 chemical elements, not counting isotopes.
2. Valency can be subdivided, that is to say, an atom with valency 1 , can divide itself into two halves each with $\frac{1}{2}$ valency; Hydrogen divides itself into 2 or into 6 parts each with $\frac{1}{2}$ or $\frac{1}{6}$ valency when it enters into combinations. Similarly valencies 2 or 3 or 4 can subdivide.
3. When elements combine, they do not do so by wholes, that is to say, each element undergoes divisions. To take a simile, if three squads of soldiers, British, Polish and Belgian come together to combine into a new unit, they will not do so as wholes, British,

Polish and Belgian squads side by side, or one on top of the other ; the three squads will break up and intermingle according to certain subvalency affinities ; when the combination ceases, the squads will reform.
4. There is among the rare earths a group of three minerals forming a new inter-periodic group. This can well be expected when one notes the curious gap which exists between the two present groups.
5. Two more neutral gases, the second being presumably Radon.
6. An element of mass 2 found in the stratosphere, to which we have given the name "Adyarium," as the investigation was made at Adyar, the Headquarters of the Theosophical Society, which is my Indian home.
7. Illustrations of " 87 " and " 91. ."
8. A lighter form of Argon, termed Proto-Argon, which comes at the right place in the Periodic Table.

If all or any of this strange material is of interest to you, I can bring down to Cambridge for your examination, of course committing you to nothing, such of it as has been published and is procurable in London. My college was John's and I can come up and stay the night.

Yours faithfully,


From "The Theosophist," Vol. LIV, July, 1933, pp. 467-472.

# THE GENESIS OF THE ELEMENTS: THE PERIODIC LAW 

By C. Jinarãjadīsa

In this issue of The Theosophist I publish a diagram giving the weights of all the elements, thus summarizing the work of Dr. Annie Besant and Bishop C. W. Leadbeater during the years 1895-1933. During the course of these many years, the investigations of the elements by the power of magnification which the faculty of clairvoyance gives have been recorded steadily, first in the magazine Lucifer of London, and later in this magazine. An appendix to this article gives a record of the issues in which these investigations were published.

These investigations are totally different from those of the chemists and physicists, in that each element is seen in puris naturalibus, that is to say, not under any electrical or magnetic excitation. The ability to see a chemical atom as it is, and without the use of any microscope, is due to that unusual power in highly trained clairvoyance which has always been known in Hindu Yoga as the " ability to become infinitesimally small." The experimenter's consciousness, with all the fullness of its faculties, is concentrated into such a tiny point that in comparison to it the chemical atom looms large. It is, as it were, by making the observer so small that to him the atom looks large, that these investigations have been made by Dr. Besant and Bishop Leadbeater, using their trained faculty of clairvoyance.

The chemical atoms are therefore observed exactly as they are, and no experiment whatsoever, except one, is made
upon them to change their natural function. This exception is due to the fact that each atom is whirling rapidly, and therefore it is necessary to lessen somewhat its movement so that the various parts of the elements can be clearly seen so as to draw them. The work of lessening the movement is not dissimilar to that of causing a person who swings a rope lighted at one end, thus making a complete circle of light, to move his arm slower so that it is possible to see the end of the lighted rope as it makes one point of light, and not a circle.

When the various elements are thus observed by clairvoyant magnification, they have definite shapes. With a few exceptions, all the elements fall into seven great groups according to their shape. Full descriptions as well as illustrations of these groups and of their disintegrations were given in the book Occult Chemistry (1st edition 1908; 2nd edition 1919). It is there described how the seven great groups are in appearance :

1. Tetrahedra
2. Cubes
3. Octohedra
4. Spikes
5. Dumb-Bells
6. Crossed Bars
7. Stars

All the elements are distributed into these seven groups by shape, with the sole exception of Hydrogen, " Adyarium," " Occultum," Helium, Nitrogen, Oxygen, Fluorine, Titanium and Zirconium, whose shapes are none of the above.

It will be seen from the diagram of the Periodic Law which I publish that Hydrogen is stated as having 18 "Anu." The word "Anu" has been taken from the Sanskrit to describe the ultimate particle of physical matter. ("Anu " does"
not take " s " to make the plural.) The nature of this particle, which in reality is no substance at all but only swirls of force in spiral formations, was described in Occult Chemistry (1908), particularly in the Appendix which describes the fundamental structure of all matter, and is entitled "The Æther of Space."

This Anu consists of two varieties, positive and negative, each the looking-glass image of the other. It is not the electron, nor the proton. It is uncertain what the electron is, from the standpoint of clairvoyant investigation, as neither Dr. Besant nor Bishop Leadbeater have been present at any physical laboratory where experiments have been made, so that they might see what it is that appear in these experiments which are described as electrons and protons.

The diagrams which give in detail the structure of each of the 99 chemical atoms have all been drawn. Of these 73 have been published, and the remaining 26 , while drawn, are awaiting publication.

Physicists to-day state that there can only be 92 elements. Clairvoyant research, however, even as early as 1907, stated that there was a neutral gas heavier than Xenon, and lighter than Radon. Furthermore, a fourth inter-periodic group of elements postulated by me, and tentative weights given for them in 1908, was found in 1909, and their correct weights stated. It will be seen by looking at our diagram that the additional neutral gas called by us "Kalon " and the new group of interperiodics make the Periodic Table fully symmetrical. In 1907, in the group Osmium, Iridium and Platinum, a fourth interperiodic was found which was labelled by us " Platinum B." This is not an isotope of Platinum but is a distinct metal, as distinct from Platinum as Platinum is from Iridium, its neighbour. This metal has lately been
isolated by some Canadian mineralogists, and the term " Canadium " given to it by them.

Two elements between Hydrogen and Helium-called by us " Adyarium " and " Occultum "-exist.

It has long been been known that Argon falls out of place in the Periodic Table. This is due to the fact that there is a very rare variety of Argon, which we have named "Proto-Argon." It comes in the correct place on the Table, but the commoner Argon is a heavier variety of it. It was noted by the investigators in 1907 that each neutral gas had a meta variety. This may be called an isotope, but the structure of each meta variety is exactly similar, consisting in fact of an addition of 42 Anu in each neutral gas to make its meta variety. There must therefore be a definite relation between the normal variety and its meta kind. The meta variety of Radon is heavier than " 87 " by 26 Anu.

There is much uncertainty regarding the true position of the elements listed in the International Table of Atomic Weights which bear atomic numbers from 62 to 71 . These are Samarium (62), Europium (63), Gadolinium (64), Terbium (65), Dysprosium (66), Holmium (67), Erbium (68), Thulium (69), Ytterbium (70), and Lutecium (71).

The element then labelled Samarium is in reality an interperiodic, that is to say, in a quantity of Samarium Oxide purchased from Messrs. Adam Hilger of London, guaranteed as " spectroscopically standardized," the shape of the element is that of the "Crossed Bars " of the Inter-periodic Groups. The clairvoyant investigators have found definite elements with clearly marked shapes of Tetrahedra, Cubes, Octohedra, Spikes and Dumb-Bells among the " rare earths" to occupy the places on the Periodic Table. The names given by us, to them, taken from the International Table, are however tentative.

Several of the elements exist in their simple condition, like Hydrogen, Silver, Sulphur, Gold, etc. But many of the elements are only procurable for examination in combinations with other elements. It is found by clairvoyance that where an element combines with another, both break up into smaller groups as they combine ; the combination is not therefore of one whole element with another whole element. When one element is in combination with another, it is necessary to break up the combination; the various component parts of each element then come together instantly. Then the element selected for examination can be observed and mapped out by clairvoyance.

The elements, Hydrogen and Masurium, have each a variety which is not an isotope; for the number of Anu in both is the same, that is to say, the second variety is exactly the same as the first in weight. The difference is in internal arrangement only.

The weights given in the table which follows are all in terms of Hydrogen $=18 \mathrm{Anu}$, that is to say, Hydrogen $=1$. For several decades chemists have discarded Hydrogen $=1$ as their unit, and used instead Oxygen $=16$. In the Table of Atomic Weights of the International Committee the weights given are all in terms of $\mathrm{O}=16$; therefore $\mathrm{H}=1 \cdot 0078$. The relation between our weights and that of the International Table can easily be found by consulting any manual of Chemistry, and adjusting our weights to the standard $\mathrm{H}=1.0078$. But during the last two years, a doubt has arisen whether Oxygen $=16$ should remain the standard of weight, because Aston has noted spectroscopically the existence of Isotopes of Oxygen, $\mathrm{O}=17$ and $\mathrm{O}=18$. The question has been mooted whether Oxygen should not be discarded as the standard, and Hydrogen or Helium taken instead. From the standpoint of Occult Chemistry there is much to be said in favour of

Hydrogen $=1$. For instance, no less than 34 elements are exact multiples of Hydrogen ; eight are whole numbers plus one half. There is evidently a definite law underlying the actual number of Anu which compose an element; some mathematician analyzing the numbers given in our Table may be able presently to discover the law.

Of all the diagrams illustrating the Periodic Law, we have found that of Crookes not only the simplest, but also most descriptive of the facts observed. His reasons for a diagram depicting a pendulum swing, which slowly narrows as it swings downwards, were given by him in his lecture at the Royal Institution, London, on February 18, 1887, and published by him later as a monograph. The Crookes diagram has been of the greatest use to our clairvoyant investigators.

A few isotopes have been examined by clairvoyance, but as they do not elucidate the Periodic Law more fully than do the normal elements, their numbers and weights have not been placed in the diagram.

The clairvoyant investigators have found that there are 99 distinct elements and not 92 as stated by physicists according to Moseley's law of atomic numbers. This figure 99 does not include any isotopes, nor the meta variety of the neutral gases.

As this table giving the weights of all the elements is issued in The Theosophist, the two investigators into what has been termed "Occult Chemistry," Dr. Annie Besant and Bishop C. W. Leadbeater, are respectively in their eightysixth and eighty-seventh years. My work as "recorder" of their work began twenty-six years ago. What has so far been published is about one-half of the whole material recorded by clairvoyant investigation. It is hoped some day to present the whole material in a third edition of Occult Chemistry.

## From The Theosophist, Vol. LIV, July, 1933 pp. '473-475.

## TABLE OF ATOMIC WEIGHTS

## As recorded by Clairvoyant Investigation

| Name | Symbol |  | NUMBER <br> OF "ANU" | WEIGHT <br> $\mathrm{H}=1$ |
| :--- | :---: | :---: | :---: | :---: |
| Hydrogen | $\ldots$ | H | 18 | 1 |
| "Adyarium" | $\ldots$ | "Ad" | 36 | 2 |
| "Occultum" | $\ldots$ | "Oc" | 54 | 3 |
| Helium | $\ldots$ | He | 72 | 4 |
| Lithium | $\ldots$ | Li | 127 | $7 \cdot 055$ |
| Beryllium | $\ldots$ | Be | 164 | $9 \cdot 11$ |
| Boron | $\ldots$ | B | 200 | $11 \cdot 11$ |
| Carbon | $\ldots$ | C | 216 | 12 |
| Nitrogen | $\ldots$ | N | 261 | $14 \cdot 50$ |
| Oxygen | $\ldots$ | O | 290 | $16 \cdot 11$ |
| Fluorine | $\ldots$ | F | 340 | $18 \cdot 88$ |
| Neon | $\ldots$ | Ne | 360 | 20 |
| "Meta-Neon" | $\ldots$ | - | 402 | $22 \cdot 33$ |
| Sodium | $\ldots$ | Na | 418 | $23 \cdot 22$ |
| Magnesium | $\ldots$ | Mg | 432 | 24 |
| Aluminium | $\ldots$ | Al | 486 | 27 |
| Silicon | $\ldots$ | Si | 520 | $28 \cdot 88$ |
| Phosphorus | $\ldots$ | P | 558 | 31 |
| Sulphur | $\ldots$ | S | 576 | 32 |
| Chlorine | $\ldots$ | Cl | 639 | $35 \cdot 50$ |
| "Proto-Argon" | $\ldots$ | - | 672 | $37 \cdot 33$ |
| Potassium | $\ldots$ | K | 701 | $38 \cdot 944$ |
|  |  |  |  |  |


| Name |  |  | Number of "ANU" | Weight $H=1$ |
| :---: | :---: | :---: | :---: | :---: |
| Argon | $\ldots$ | A | 714 | $39 \cdot 66$ |
| Calcium | ... | Ca | 720 | 40 |
| "Meta-Argon" | ... | - | 756 | 42 |
| Scandium | ... | Sc | 792 | 44 |
| Titanium | ... | Ti | 864 | 48 |
| Vanadium | ... | V | 918 | 51 |
| Chromium | ... | Cr | 936 | 52 |
| Manganese | ... | Mn | 992 | $55 \cdot 11$ |
| Iron | ... | Fe | 1008 | 56 |
| Cobalt | ... | Co | 1036 | $57 \cdot 55$ |
| Nickel | ... | Ni | 1064 | $59 \cdot 11$ |
| Copper | ... | Cu | 1139 | $63 \cdot 277$ |
| Zinc | ... | Zn | 1170 | 65 |
| Gallium | $\ldots$ | Ga | 1260 | 70 |
| Germanium | $\ldots$ | Ge | 1300 | $72 \cdot 22$ |
| Arsenic | $\ldots$ | As | 1350 | 75 |
| Selenium | ... | Se | 1422 | 79 |
| Bromine | ... | Br | 1439 | 79.944 |
| Krypton | $\ldots$ | Kr | 1464 | $81 \cdot 33$ |
| "Meta-Krypton" | ... | - | 1506 | 83.66 |
| Rubidium | $\ldots$ | Rb | 1530 | 85 |
| Strontium | ... | Sr | 1568 | $87 \cdot 11$ |
| Yttrium | ... | Yt | 1606 | 89.22 |
| Zirconium | $\ldots$ | Zr | 1624 | $90 \cdot 22$ |
| Niobium | $\cdots$ | Nb | 1719 | 95.50 |
| Molybdenum | ... | Mo | 1746 | 97 |
| Masurium | ... | Ma | 1802 | 100.11 |
| Ruthenium |  | Ru | 1848 | $102 \cdot 66$ |
| Rhodium | ... | Rh | 1876 | $104 \cdot 22$ |
| Palladium | ... | Pd | 1904 | $105 \cdot 77$ |


| Name | Symbol |  | $\begin{aligned} & \text { NUMBER } \\ & \text { OF "ANU" } \end{aligned}$ | Weight $\mathrm{H}=1$ |
| :---: | :---: | :---: | :---: | :---: |
| Silver | ... | Ag | 1945 | ${ }^{108.055}$ |
| Cadmium | ... | Cd | 2016 | 112 |
| Indium | ... | In | 2052 | 114 |
| Tin | ... | Sn | 2124 | 118 |
| Antimony | ... | Sb | 2169 | $120 \cdot 50$ |
| Tellurium | ... | Te | 2223 | 123.50 |
| Iodine | ... | I | 2287 | $127 \cdot 055$ |
| Xenon | ... | Xe | 2298 | $127 \cdot 66$ |
| "Meta-Xenon" | $\ldots$ | - | 2340 | 130 |
| Caesium | $\ldots$ | Cs | 2376 | 132 |
| Barium | $\ldots$ | Ba | 2455 | 136.388 |
| Lanthanum | ... | La | 2482 | $137 \cdot 88$ |
| Cerium | $\ldots$ | Ce | 2511 | $139 \cdot 50$ |
| Praseodymium | $\ldots$ | Pr | 2527 | $140 \cdot 388$ |
| Neodymium | ... | Nd | 2575 | 143 |
| Illinium | $\ldots$ | Il | 2640 | 146.66 |
| X Interperiodic | ... | - | 2646 | 147 |
| Y Interperiodic | $\ldots$ | - | 2674 | 148.55 |
| $Z$ Interperiodic | $\ldots$ | - | 2702 | 150.11 |
| ? Samarium | $\ldots$ | Sm | 2794 | 155.22 |
| ? Europium | ... | Eu | 2843 | 157.944 |
| ? Gadolinium | ... | Gd | 2880 | 160 |
| ? Terbium | ... | Tb | 2916 | 162 |
| ? Dysprosium | ... | Ds | 2979 | $165 \cdot 55$ |
| ? Holmium | ... | Ho | 3004 | $166 \cdot 88$ |
| ? Erbium | ... | Er | 3029 | 168.277 |
| "Kalon" | ... | "Ka" | 3054 | $169 \cdot 66$ |
| "Meta-Kalon" | $\ldots$ | - | 3096 | 172 |
| ? Thulium | ... | Tm | 3096 | 172 |
| ? Ytterbium | ... | Yb | 3131 | 173.944 |


| Name | Symbol | $\begin{aligned} & \text { NUMBER } \\ & \text { OF "ANU" } \end{aligned}$ | Weight $\mathrm{H}=1$ |
| :---: | :---: | :---: | :---: |
| ? Lutecium | ... Lu | 3171 | $176 \cdot 166$ |
| Hafnium | ... Hf | 3211 | 178.388 |
| Tantalum | Ta | 3279 | 182.166 |
| Tungsten | W | 3299 | $183 \cdot 277$ |
| Rhenium | Re | 3368 | $187 \cdot 11$ |
| Osmium | Os | 3430 | $190 \cdot 55$ |
| Iridium | Ir | 3458 | 192.11 |
| Platinum | Pt | 3486 | 193.66 |
| "Canadium" | ... - | 3514 | 195.22 |
| Gold | Au | 3546 | 197 |
| Mercury | Hg | 3576 | 198.66 |
| Thallium | Tl | 3678 | $204 \cdot 33$ |
| Lead | Pb | 3727 | 207.055 |
| Bismuth | Bi | 3753 | 208.50 |
| Polonium | Po | 3789 | $210 \cdot 50$ |
| "85" | ... - | 3978 | 221 |
| Radon | Rn | 3990 | $221 \cdot 66$ |
| "87" | ... - | 4006 | 222.55 |
| "Meta-Radon' | ... - | 4032 | 224 |
| Radium | Ra | 4087 | 227.055 |
| Actinium | Ac | 4140 | 230 |
| Thorium | Th | 4187 | $232 \cdot 611$ |
| "91" | $\ldots$ - - | 4227 | 234.833 |
| Uranium | U | 4267 | $237 \cdot 055$ |

## APPENDIX

## A RECORD OF THE INVESTIGATIONS

By annie Besant, D.L., and the Rt. Rev. C. W. Leadbeater

## I. Already Published

1. Diagrams of $\mathrm{H}, * \mathrm{O}$, and N , including diagrams of their disintegration : Lucifer, London, November 1895.
2. Diagrams with details of disintegrations of "Oc," $\mathrm{He}, \mathrm{Li}, \mathrm{Be}, \mathrm{B}, \mathrm{C}, \mathrm{F}, \mathrm{Ne}$, "Meta-Ne," Na, Mg, Al, Si, P, S, Cl, $\mathrm{K}, \mathrm{A}, ~ " M e t a-\mathrm{A}, " \mathrm{Ca}, \mathrm{Sc}, \mathrm{Ti}, \mathrm{V}, \mathrm{Cr}, \mathrm{Mn}, \mathrm{Fe}, \mathrm{Co}, \mathrm{Ni}, \mathrm{Cu}, \mathrm{Zn}$, $\mathrm{Ga}, \mathrm{Ge}, \mathrm{As}, \mathrm{Se}, \mathrm{Br}, \mathrm{Kr}$, "Meta-Kr," Rb, Sr, Yt, Zr, Nb, Mo, $\mathrm{Ru}, \mathrm{Rh}, \mathrm{Pd}, \mathrm{Ag}, \mathrm{Cd}, \mathrm{In}, \mathrm{Sn}, \mathrm{Sb}, \mathrm{Te}, \mathrm{I}, \mathrm{Xe}, ~ " M e t a-X e, " ~ " \mathrm{Ka}$," " Meta-Ka," Os, Ir, Pt, "Pt B," Au ; and diagrams only of Ra ; and a memorandum as to three new Inter-periodics X, Y, Z, with weights: The Theosophist, Adyar, Madras, for Jan.-Dec. 1908, printed as the book Occult Chemistry (Adyar, Madras, December, 1908), 2nd edition, edited by A. P. Sinnett (London, 1919).

* with model.

3. Diagrams were drawn of the following, and filed, but not published, but the weights announced, with brief descriptions as to type: $\mathrm{Cs}, \mathrm{Ba}, \mathrm{La}, \mathrm{Ce}, \mathrm{Pr}, \mathrm{Nd}$, ? Eu, ? Gd, ? Tb , ? Dy , ? Er, ? Tm or $\mathrm{Yb}, \mathrm{Ta}, \mathrm{W}, \mathrm{Hg}, \mathrm{Hg}$ isotope, $\mathrm{Tl}, \mathrm{Pb}, \mathrm{Bi}$, ?Ac, Th, U : The Theosophist, July, 1909.
4. Published with diagrams :

Uranium, U ; Common Salt*, NaCl ; Methane, $\mathrm{CH}_{\mathbf{4}}$; Water*, $\mathrm{H}_{8} \mathrm{O}$ : The Theosophist, March, 1924,

Hydroxyl Ion, OH ; Hydrogen Peroxide, $\mathrm{H}_{3} \mathrm{O}_{8}$; Methyl Alcohol, $\mathrm{CH}_{3} \mathrm{OH}$; Acetic Acid, $\mathrm{CH}_{3} \mathrm{COOH}$; Benzene*, $\mathrm{C}_{6} \mathrm{H}_{6}$ : The Theosophist, April 1924.

Sodium Hydroxide, NaOH ; Hydrochloric Acid, HCl ; Carbon Monoxide, CO ; Carbon Dioxide, $\mathrm{CO}_{8}$; Sodium Carbonate*, $\mathrm{Na}_{2} \mathrm{CO}_{3}$; isotope of Chlorine, Cl : The Theosophist, August, 1924.

Calcium Hydroxide, $\mathrm{Ca}(\mathrm{OH})_{\mathbf{s}}$; Calcium Carbide, $\mathrm{CaC}_{2}$; Acetylene, $\mathrm{C}_{3} \mathrm{H}_{3}$; Methyl Chloride, $\mathrm{CH}_{3} \mathrm{Cl}$; isomer of Methyl Chloride, $\mathrm{CH}_{3} \mathrm{Cl}$; Chloroform, $\mathrm{CHCl}_{3}$; Carbon Tetrachloride, $\mathrm{CCl}_{4}$ : The Theosophist, March, 1925.

Naphthalene, $\mathrm{C}_{10} \mathrm{H}_{8}{ }^{*}$ : The Theosophist, April, 1925.
Anthracene, $\mathrm{C}_{16} \mathrm{H}_{10}{ }^{*}$ : The Theosophist, August, 1925. (A mention is made of the process of catalysis when Potassium Chlorate $\mathrm{KClO}_{3}$ and Manganese Dioxide $\mathrm{MnO}_{2}$ are heated.)

The Diamond, composed of 594 C , with a description of its structure and a photograph of a model : The Theosophist, September, 1925.

[^0]Ozone, $\mathrm{O}_{3}^{*}$ : The Theosophist, October, 1925.
Graphite* ; isotope of Tellurium, Te : The Theosophist, June, 1926.
$\mathrm{Li}, \mathrm{F}, \mathrm{K}, \mathrm{Mn}, \mathrm{Rb}, \mathrm{Ma}, \mathrm{Cs}, \mathrm{Il}, \mathrm{Yt}, \mathrm{Re}, " 87$ ": The Theosophist, October, 1932.
" Oc," $\mathrm{Na}, \mathrm{Cl}, \mathrm{Cu}, \mathrm{Br}, \mathrm{Ag}, \mathrm{I}, \mathrm{Gd}, \mathrm{Er}, \mathrm{Au}, ~ " ~ 85 ": ~ T h e$ Theosophist, November, 1932.

Fe, Co, Ni, Ru, Rh, Pd, " X", "Y," " Z," Os, Ir, Pt, "Canadium" ; new element, " Adyarium" : The Theosophist, December, 1932.
$\mathrm{He}, \mathrm{Ne}$, " Meta-Ne," " Proto Argon," A, " Meta-Argon," Kr, "Meta-Kr," Xe, "Meta-Xe," " Ka," " Meta-Ka," Rn, "Meta-Rn"; two varieties of Hydrogen, H: The Theosophist, January, 1933.

Three varieties of Oxygen, O ; two varieties of Ozone, $\mathrm{O}_{3}$ : The Theosophist, March, 1933.

## II. Diagrams drawn, awaiting Publication

1. The remaining 26 chemical elements not so far published.
2. $\mathrm{NH}_{3} ; \mathrm{AgNO}_{3}$ and its crystal composed of 1296 molecules; $\mathrm{HNO}_{3} ; \mathrm{KNO}_{3} ; \mathrm{NaNO}_{3} ; \mathrm{FeCl}_{3}$; Urea $\mathrm{CO}\left(\mathrm{NH}_{8}\right)_{4}$.
$\mathrm{PO}_{3} ; \mathrm{PO}_{4} ; \mathrm{H}_{2} \mathrm{SO}_{4} ; \mathrm{KCN}$; Alpha and Beta Naphthol $\mathrm{C}_{10} \mathrm{H}_{2} \mathrm{OH}$; Di-ethyl Ether $\mathrm{C}_{2} \mathrm{H}_{5} \mathrm{OC}_{2} \mathrm{H}_{5}$; Phenol $\mathrm{C}_{6} \mathrm{H}_{5} \mathrm{OH}$; Hydroquinone $\mathrm{C}_{6} \mathrm{H}_{4}(\mathrm{OH})_{9}[1: 4]$; Tartaric acid $\mathrm{C}_{4} \mathrm{H}_{6} \mathrm{O}_{6}$; Salicylic acid $\mathrm{C}_{6} \mathrm{H}_{6}(\mathrm{OH}) \mathrm{COOH}[1: 2]$; Benzaldehyde $\mathrm{C}_{6} \mathrm{H}_{5} \mathrm{CHO}$; Pyridine $\mathrm{C}_{5} \mathrm{H}_{5} \mathrm{~N}$; Indigo $\mathrm{C}_{16} \mathrm{H}_{10} \mathrm{~N}_{8} \mathrm{O}_{8}$.

Maleic acid $\mathrm{C}_{8} \mathrm{H}_{2}(\mathrm{COOH})_{2} ; \mathrm{KClO}_{3}$; Calcite and Aragonite.

* with model,

Action of Pt as catalyst in combining $2 \mathrm{H}_{2}+\mathrm{O}_{2}=2 \mathrm{H}_{2} \mathrm{O}$.
Copper hydroxide $\mathrm{Cu}(\mathrm{OH})_{2}$; Action of Sulphuric acid on Copper hydroxide; Stannous Oxide SnO ; Stannic Oxide $\mathrm{SnO}_{4}$; Antimony Bromide $\mathrm{SbBr}_{3}$; Magnesium Chloride $\mathrm{MgCl}_{3}$.

TRINITY COLLEGE, CAMBRIDGE.

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Reply of the late Professor F. W. Aston

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[^0]:    * with model.

